Attachment 1
Distinguishing Characteristics and Supporting Framework

Draft Distinguishing Characteristics

1 In-Delta Water Quality
2 Export Water Quality
3 Diversion Effects on Fisheries
4 Delta Flow Circulation
5 Storage and Release of Water
6 Water Supply Opportunities
7 Water Transfer Opportunities
8 Operational Flexibility
9 South Delta Access to Water
10 Risk to Export Water Supplies
11 Total Cost
12 Assurances Difficulty
13 Habitat Impacts
14 Land Use Changes
15 Socio-economic Impacts
16 Consistency with Solution Principles
17 Ability to Phase Facilities
18 Brackish Water Habitat

DRAFT
DISTINGUISHING CHARACTERISTICS
DECISION MATRIX

Alternative	Alternative Variation	In-Delta Water Quality	Export Water Quality	Diversion Effects on Fisheries	Delta Flow Circulation	Storage and Release of Water	Water Supply Opportunities	Water Transfer Opportunities	Operational Flexibility	South Delta Access to Water	Risk to Export Water Supplies	Total Cost	Assurances Difficulty	Habitat Impacts	Land Use Changes	Socio-economic Impacts	Consistency with Solution Principles	Ability to Phase Facilities	Brackish Water Habitat
Existing Conditions																			
No-Action Alternative																			
Existing System Conveyance	1A																		
	1B																		
	1C																		
Modified Through Delta Conv.	2A																		
	2B																		
	2D																		
	2E																		
Dual Delta Conveyance	3A																		
	3B																		
	3E																		
	3H																		
	3I																		

See Attachement 2 for example rankings.

1. In-Delta Water Quality

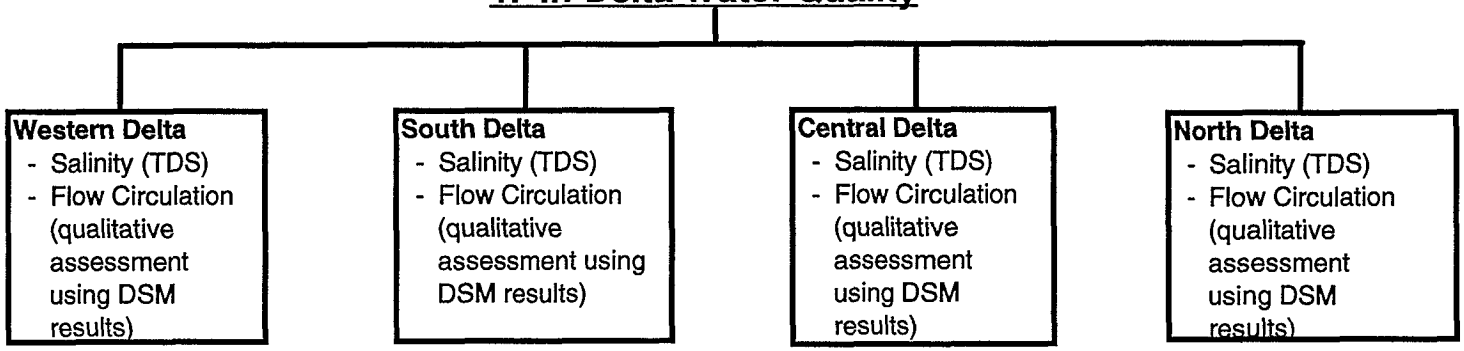


Table 1.1 Summary

	Western Delta		South Delta		Central Delta		North Delta	
Alternative	Salinity	Circulation	Salinity	Circulation	Salinity	Circulation	Salinity	Circulation
Exist. Cond.								
No-action								
1A								
1B								
1C								
2A								
2B								
2D								
2E								
3A								
3B								
3E								
3H								
3I								

Lower salinity will be provided a higher ranking.
Better flow circulation will be provided a higher ranking.

2. Export Water Quality

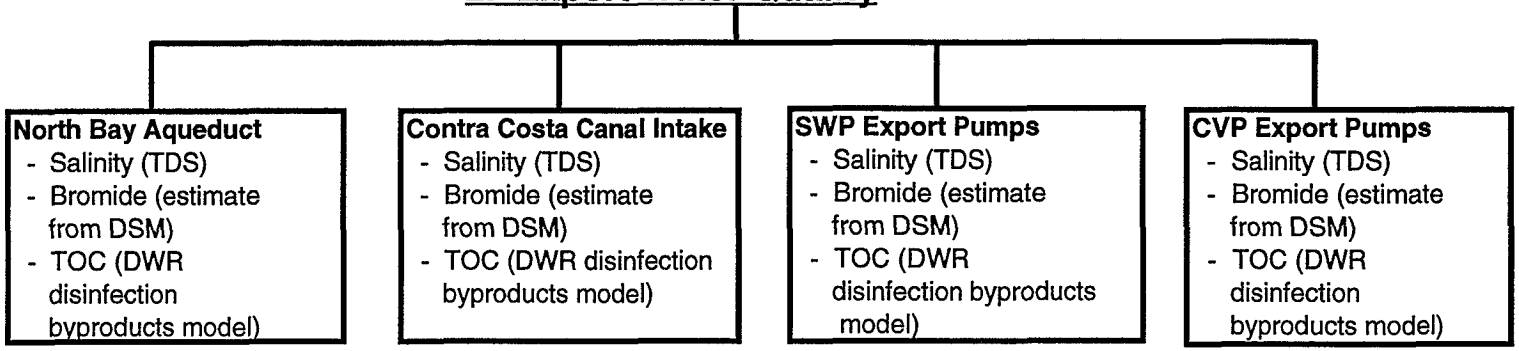


Table 2.1 Summary

	North Bay			Contra Costa			SWP Export			CVP Export Pumps		
Alternative	Salinity	Bromide	TOC	Salinity	Bromide	TOC	Salinity	Bromide	TOC	Salinity	Bromide	TOC
Exist. Cond												
No-action												
1A												
1B												
1C												
2A												
2B												
2D												
2E												
3A												
3B												
3E												
3H												
3I												

Lower salinity, bromide, and TOC will be provided higher rankings.

3. Diversion Effects on Fisheries

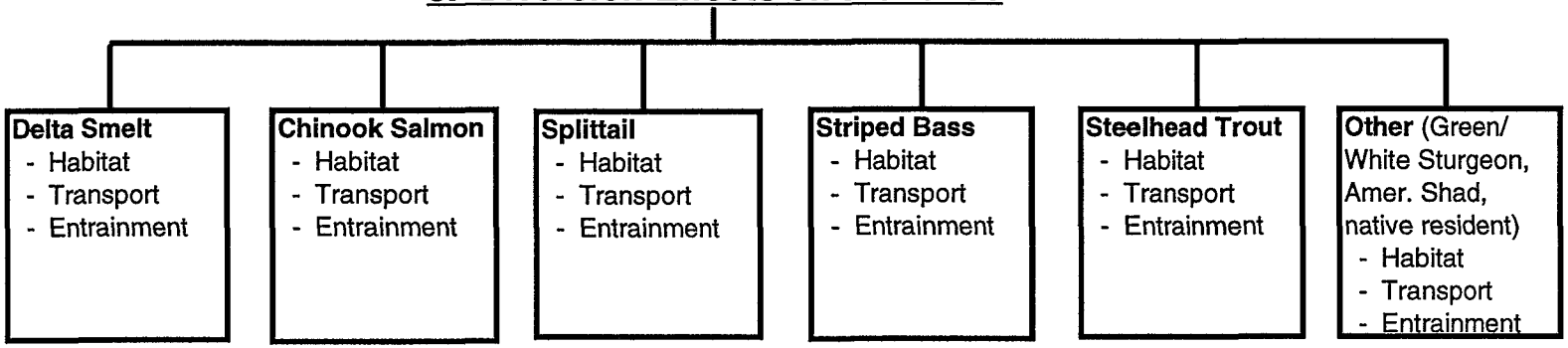


Table 3.1 Summary

	Delta Smelt			Chinook Salmon			Splittail			Striped Bass			Steelhead Trout			Other		
Alternative	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.
Exist. Cond.																		
No-action																		
1A																		
1B																		
1C																		
2A																		
2B																		
2D																		
2E																		
3A																		
3B																		
3E																		
3H																		
3I																		

Values are on a scale from 0 to 1; with 1 representing the best performance achievable from the range of alternatives.

4. Delta Flow Circulation

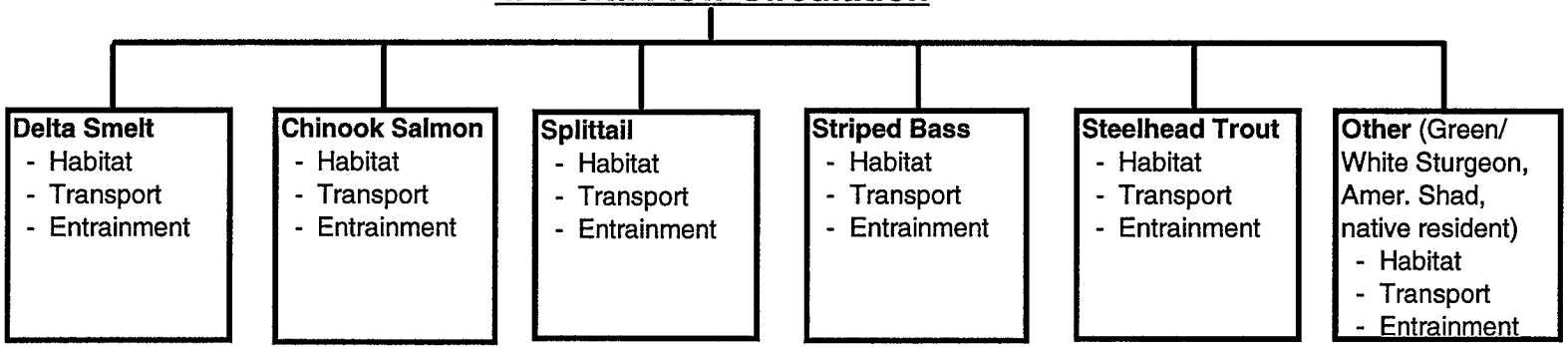


Table 4.1 Summary

	Delta Smelt			Chinook Salmon			Splittail			Striped Bass			Steelhead Trout			Other		
Alternative	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.
Exist. Cond.																		
No-action																		
1A																		
1B																		
1C																		
2A																		
2B																		
2D																		
2E																		
3A																		
3B																		
3E																		
3H																		
3I																		

Values are on a scale from 0 to 1; with 1 representing the best performance achievable from the range of alternatives.

5. Storage and Release of Water

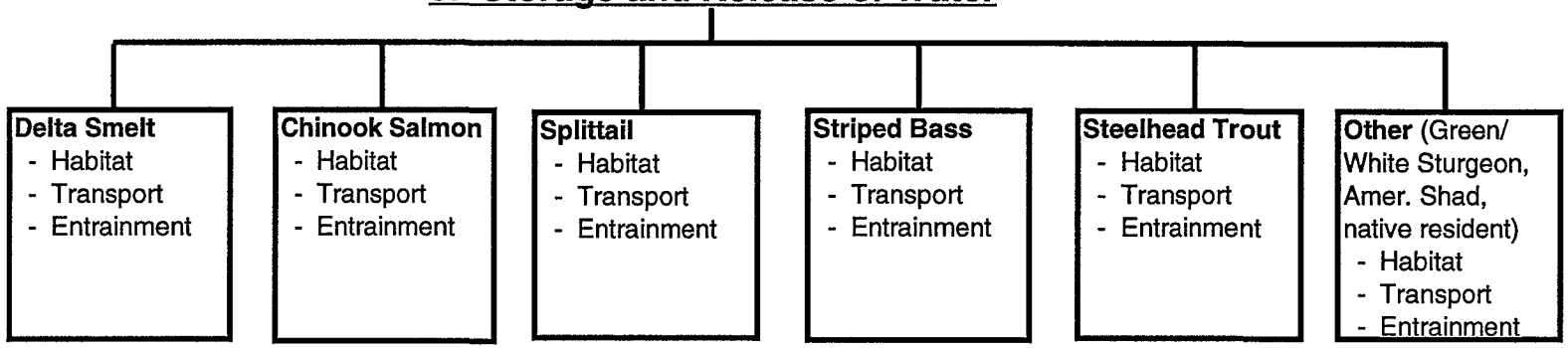


Table 5.1 Summary

	Delta Smelt			Chinook Salmon			Splittail			Striped Bass			Steelhead Trout			Other		
Alternative	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.	Habitat	Trans.	Entrain.
Exist. Cond.																		
No-action																		
1A																		
1B																		
1C																		
2A																		
2B																		
2D																		
2E																		
3A																		
3B																		
3E																		
3H																		
3I																		

Values are on a scale from 0 to 1; with 1 representing the best performance achievable from the range of alternatives.

6. Water Supply Opportunities (new water generated from alternatives)

CALFED environmental water supply benefits (acre-feet);
- avg. year water supply
- critical year water supply

CALFED agricultural/Urban water supply benefits (acre-feet)
- avg. year water supply

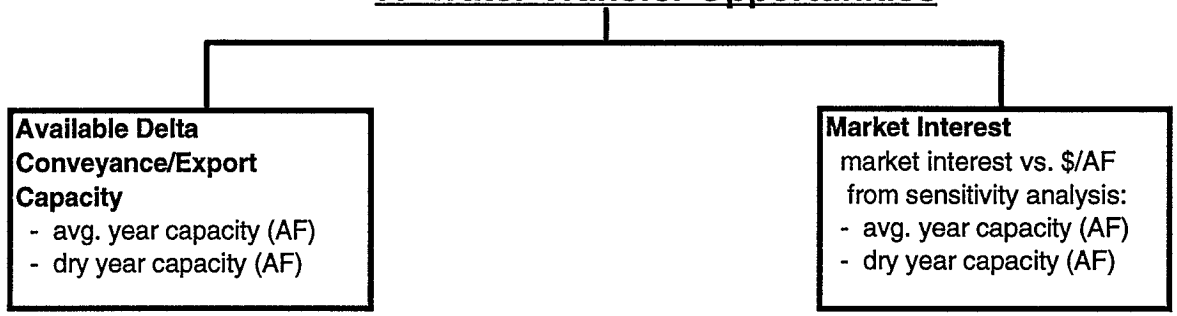
Assumes 1/3 of developed supply allocated to environmental uses and 2/3 to ag./urban uses.
Water acquired from willing sellers for ecosystem needs is accounted for separately.
No regional breakdown is available at this time.

Table 6.1 Summary

	Envir. Water Benefits		Ag./Urban Water Benefits		$/AF developed (avg. Yr.)
Alternative	Crit. Yr. (TAF)	Avg. Yr. (TAF)	Crit. Yr. (TAF)	Avg. Yr. (TAF)	(for reference only)
Exist. Cond.					
No-action					
1A					
1B					
1C					
2A					
2B					
2D					
2E					
3A					
3B					
3E					
3H					
3I					

Water supply opportunity increase over the no-action alternative; more supply = higher ranking.
- For reference, Avg. Yr. no-action water supply approximately __ million acre-feet
- For reference, Critical Yr. no-action water supply approximately __ million acre-feet

7. Water Transfer Opportunities



Provide available capacity under regulatory and physical constraints.

Table 7.1 Summary

	Available Conveyance/Export Capacity		Market Interest	
Alternative	Crit. Yr. (TAF)	Avg. Yr. (TAF)	Crit. Yr. (TAF)	Avg. Yr. (TAF)
Exist. Cond.				
No-action				
1A				
1B				
1C				
2A				
2B				
2D				
2E				
3A				
3B				
3E				
3H				
3I				

Water transfer opportunity increase over the no-action alternative; more opportunity = higher ranking.

8. Operational Flexibility

Available facilities (consider flexibility provided by:)
- South Delta export capacity
- Upstream storage (AF)
- Aqueduct storage (AF)
- Isolated facility (cfs)
- In-Delta storage (AF)
- Alternate diversion points
- Groundwater storage

Ability to "Make-up " water
- ability for "make-up" water supply for various assumed protective actions (based on DWRSIM sensitivity analyses)
- avg. year capacity (AF)
- dry year capacity (AF)

Table 8.1 Summary

	Available facilities	Ability to "make-up" water	
Alternative		Crit. Yr. (TAF)	Avg. Yr. (TAF)
Exist. Cond.			
No-action			
1A			
1B			
1C			
2A			
2B			
2D			
2E			
3A			
3B			
3E			
3H			
3I			

A higher ranking will be provided alternatives with more available facilities which increase flexibility.
A higher ranking will be provided alternatives which have a higher ability to "make-up" water potentialy lost to protective actions.

9. South Delta Access to Water

Consider stage (water level) or other access to water from:
- thru Delta conveyance
- isolated conveyance (via direct connenctions
- operable barriers
- other opportunities?

Table 9.1 Summary

Alternative	Description of Access	Measure of Access (0-1)
Exist. Cond.		
No-action		
1A		
1B		
1C		
2A		
2B		
2D		
2E		
3A		
3B		
3E		
3H		
3I		

Values are on a scale from 0 to 1; with 1 representing the best performance achievable from the range of alternatives.

10. Risk to Export Water Supplies

Consider:
- earthquake risk to conveyance
- flood risk to conveyance
- available storage south of Delta

Table 10.1 Summary

Alternative	Description of Risk	Net Reduction in Risk (0-1)
Exist. Cond.		
No-action		
1A		
1B		
1C		
2A		
2B		
2D		
2E		
3A		
3B		
3E		
3H		
3I		

Values are on a scale from 0 to 1; with 1 representing the lowest risk achievable from the range of alternatives.

11. Total Cost

Initial Cost (present value and annualized costs for time sequence):
- Study, design & permitting
- Construction
- Mitigation
- Other

Annual Costs (present value and annualized costs for time sequence:)
- Operation and maintenance
- Monitoring
- Reoccurring annual purchases
- Other

Table 11.1 Summary

	Initial Cost	Annual Cost
Alternative		
Exist. Cond.		
No-action		
1A		
1B		
1C		
2A		
2B		
2D		
2E		
3A		
3B		
3E		
3H		
3I		

Lower costs will be provided the highest ranking.

12. Assurances Difficulty

Qualitative assessment considering the sizes and complexity of storage and conveyance facilities. The difficulty in developing workable assurances will increase incrementally with increased modifications to the existing system.

Table 12.1 Summary

Alternative	Storage/Conveyance Facility Description	Difficulty (0-1)
Exist. Cond.		
No-action		
1A		
1B		
1C		
2A		
2B		
2D		
2E		
3A		
3B		
3E		
3H		
3I		

Values are on a scale from 0 to 1; with 0 representing the most difficulty and 1 the least difficulty achievable from the range of alternatives.

13. Habitat Impacts

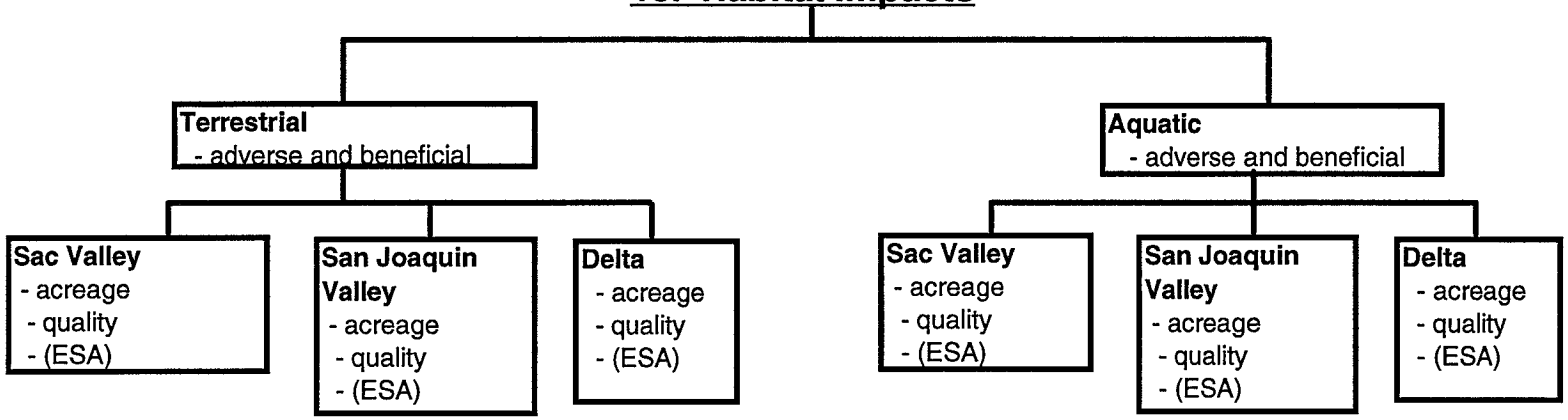


Table 13.1 Summary

	Adverse Impacts						Beneficial Impacts					
	Terrestrial			Aquatic			Terrestrial			Aquatic		
Alternative	Acreage	Quality	ESA	Acreage	Quality	ESA	Acreage	Quality	ESA	Acreage	Quality	ESA
Exist. Cond												
No-action												
1A												
1B												
1C												
2A												
2B												
2D												
2E												
3A												
3B												
3E												
3H												
3I												

Summarized from regions on following sheets

Table 13.2 Terrestrial Habitat Adverse Impacts

	Sac Valley			San Joaquin Valley			Delta		
Alternative	Acreage	Quality	ESA	Acreage	Quality	ESA	Acreage	Quality	ESA
Exist. Cond									
No-action									
1A									
1B									
1C									
2A									
2B									
2D									
2E									
3A									
3B									
3E									
3H									
3I									

Table 13.3 Terrestrial Habitat Beneficial Impacts

		Sac Valley		San Joaquin Valley			Delta		
Alternative	Acreage	Quality	ESA	Acreage	Quality	ESA	Acreage	Quality	ESA
Exist. Cond									
No-action									
1A									
1B									
1C									
2A									
2B									
2D									
2E									
3A									
3B									
3E									
3H									
3I									

Table 13.4 Aquatic Habitat Adverse Impacts

	Sac Valley			San Joaquin Valley			Delta		
Alternative	Acreage	Quality	ESA	Acreage	Quality	ESA	Acreage	Quality	ESA
Exist. Cond									
No-action									
1A									
1B									
1C									
2A									
2B									
2D									
2E									
3A									
3B									
3E									
3H									
3I									

Table 13.5 Aquatic Habitat Beneficial Impacts

	Sac Valley			San Joaquin Valley			Delta		
Alternative	Acreage	Quality	ESA	Acreage	Quality	ESA	Acreage	Quality	ESA
Exist. Cond									
No-action									
1A									
1B									
1C									
2A									
2B									
2D									
2E									
3A									
3B									
3E									
3H									
3I									

14. Land Use Changes

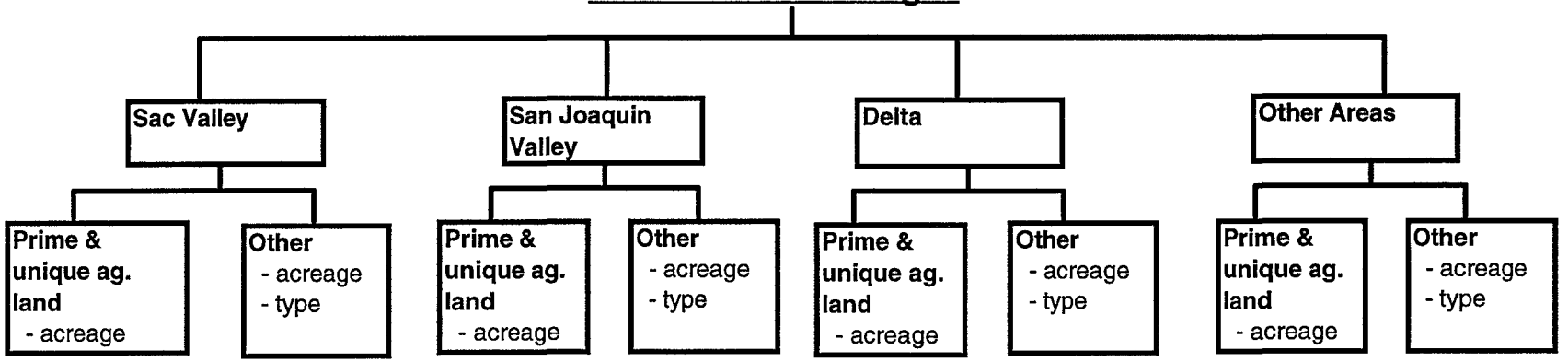


Table 14.1 Summary

	Sac Valley			San Joaquin Valley			Delta			Other Areas		
Alternative	Prime ag. (acreage)	Other (acreage)	Other (type)	Prime ag. (acreage)	Other (acreage)	Other (type)	Prime ag. (acreage)	Other (acreage)	Other (type)	Prime ag. (acreage)	Other (acreage)	Other (type)
Exist. Cond.												
No-action												
1A												
1B												
1C												
2A												
2B												
2D												
2E												
3A												
3B												
3E												
3H												
3I												

The least land use change will be provided the highest ranking.

15. Socio-Economic Impacts

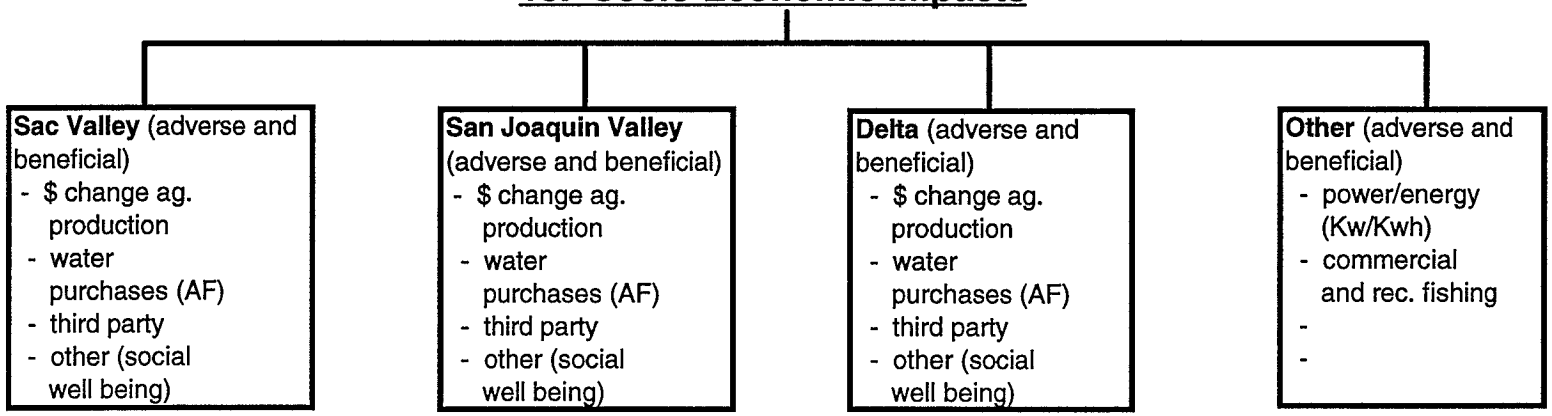


Table 15.1 Summary

	Adverse Impacts						Beneficial Impacts					
Alternative	$ ag. prod.	AF water purch.	Third Party	Other	Other	Other	$ ag. prod.	AF water puch.	Third Party	Other	Other	Other
Exist. Cond												
No-action												
1A												
1B												
1C												
2A												
2B												
2D												
2E												
3A												
3B												
3E												
3H												
3I												

Table 15.2 Sac Valley Impacts

Alternative	Adverse Impacts						Beneficial Impacts					
	$ ag. prod.	AF water purch.	Third Party	Other	Other	Other	$ ag. prod.	AF water puch.	Third Party	Other	Other	Other
Exist. Cond												
No-action												
1A												
1B												
1C												
2A												
2B												
2D												
2E												
3A												
3B												
3E												
3H												
3I												

Table 15.3 San Joaquin Valley Impacts

Alternative	Adverse Impacts						Beneficial Impacts					
	$ ag. prod.	AF water purch.	Third Party	Other	Other	Other	$ ag. prod.	AF water puch.	Third Party	Other	Other	Other
Exist. Cond												
No-action												
1A												
1B												
1C												
2A												
2B												
2D												
2E												
3A												
3B												
3E												
3H												
3I												

The lowest socio-economic impacts will be provided the highest ranking.

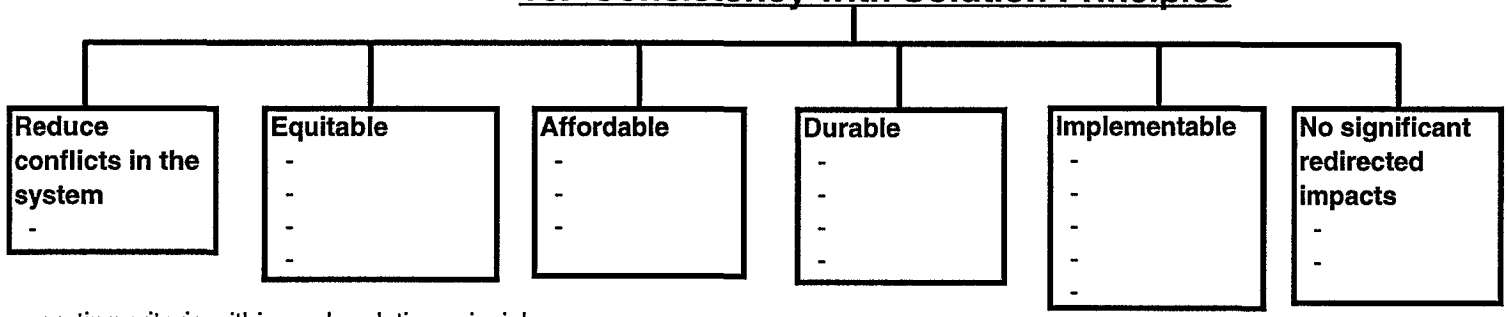
Table 15.4 Delta Impacts

Alternative	Adverse Impacts						Beneficial Impacts					
	$ ag. prod.	AF water purch.	Third Party	Other	Other	Other	$ ag. prod.	AF water puch.	Third Party	Other	Other	Other
Exist. Cond												
No-action												
1A												
1B												
1C												
2A												
2B												
2D												
2E												
3A												
3B												
3E												
3H												
3I												

Table 15.5 Other Impacts

Alternative	Adverse Impacts						Beneficial Impacts					
	Power energy	Fishing	Other	Other	Other	Other	Power energy	Fishing	Other	Other	Other	Other
Exist. Cond												
No-action												
1A												
1B												
1C												
2A												
2B												
2D												
2E												
3A												
3B												
3E												
3H												
3I												

16. Consistency with Solution Principles



Consider the supporting criteria within each solution principle.

Table 16.1 Summary

Alternative	Reduce Conflicts	Equitable	Affordable	Durable	Implementable	No Significant Redirected Impacts
Exist. Cond.						
No-action						
1A						
1B						
1C						
2A						
2B						
2D						
2E						
3A						
3B						
3E						
3H						
3I						

The best conformance with solution principles will be provided the highest ranking.

17. Ability to Phase Facilities

Qualitative
- South Delta export capacity
- Upstream storage (AF)
- Aqueduct storage (AF)
- Isolated facility (cfs)
- In-Delta storage (AF)
- Alternate diversion points
- Groundwater

Table 17.1 Summary

Alternative	Description of Facility Phasing	Measure of Phasing (0-1)
Exist. Cond.		
No-action		
1A		
1B		
1C		
2A		
2B		
2D		
2E		
3A		
3B		
3E		
3H		
3I		

Values are on a scale from 0 to 1; with 1 representing the easiest phasing achievable from the range of alternatives.

18. Brackish Water Habitat

Critical Year, extent of brackish water habitat (compare with existing standards)
- # days X-2 (duration)
- location and surface area/volume
- time of year

Average Year extent of brackish water habitat (compare with existing standards)
- # days X-2 (duration)
- location and surface area/volume
- time of year

Table 18.1 Summary

Alternative	Critical year			Average year		
	# days X-2	Location/area/volume	Time of year	# days X-2	Location/area/volume	Time of year
Exist. Cond						
No-action						
1A						
1B						
1C						
2A						
2B						
2D						
2E						
3A						
3B						
3E						
3H						
3I						